

Listed are synopses of recent books that should be of interest to the readers of the *IBM Systems Journal*. Inquiries should be directed to the publishers cited.

Suggested reading

Fundamentals of Interactive Computer Graphics, J. D. Foley and A. Van Dam, Addison-Wesley Publishing Company, Reading, MA, 1982. 664 pp. (ISBN 0-201-14468-9). This book is a member of the Addison-Wesley Systems Programming Series, and is a must for anyone with an interest in computer graphics. The introductory material, which provides a comprehensive base for the beginner, is followed by well-illustrated discussions of graphics hardware and software for two- and three-dimensional applications. The authors develop a graphics application support package in Pascal as they present the concepts and logic behind such topics as windowing, clipping, hidden-line removal, shading, and geometric transformations. Throughout the book, a focus is maintained on the human factors considerations that are paramount in the development of graphics interfaces. Many colorful photographs are included to illustrate the discussion and the potential of the techniques being presented to the reader. *Fundamentals of Interactive Computer Graphics* is an effective, comprehensive treatment of a complex topic.

How to Write and Publish Engineering Papers and Reports, H. B. Michaelson (CHQ White Plains, NY), ISI Press, Philadelphia, 1982. 158 pp. (ISBN 0-89495-016-9, cloth; ISBN 0-89495-017-7, paper). This book, written by a former associate editor of the *IBM Journal of Research and Development*, offers practical information for the engineer author. It deals not only with logical organization and effective writing, but also with the strategic decisions every author must make to write and publish a manuscript successfully. In addition to the chapters on writing techniques, there are sections on matching objectives with reader interest, avoiding information traps, choosing graphics for maximum impact, dealing with prepublication reviews, and presenting papers orally.

Software Tools in Pascal, B. W. Kernighan and P. J. Plauger, Addison-Wesley Publishing Company, Reading, MA, 1981. 366 pp. (ISBN 0-201-10342-7). Techniques for the generation of efficient, maintainable programs are at best difficult to teach and to learn. *Software Tools in Pascal* provides both the vehicle for learning efficient coding techniques, and practical tools that can be used in the development of Pascal programs. The principles of sound design, testing, and portability are emphasized in the framework of structured programming and top-down design.

Programming in ADA, J. G. P. Barnes (SPL International), Addison-Wesley Publishing Company, Reading, MA, 1982. 340 pp. (ISBN 0-201-13793-3, cloth; ISBN 0-201-13792-5, paper). ADA was developed for the U.S. Department of Defense for use in the development of embedded systems such as those for process control and missile guidance. Though its development was directed at a specific systems environment, it is a general-purpose language that may well come into broad use in this decade. The author, who was one of the members of the ADA language design team, effectively discusses the objectives and style of ADA. This is followed by chapters that present the features of ADA and illustrate and reinforce them with examples and exercises.

Problem Solving and Computer Programming, Peter Grogono and Sharon H. Nelson, Addison-Wesley Publishing Company, Reading, MA, 1982. 284 pp. (ISBN 0-21-02460-8). Good programmers have come from all sorts of backgrounds—literature, economics, philosophy, languages, engineering, physical sciences, mathematics—even theology. A popular belief is that mathematical ability is the touchstone of programming ability. This does not seem to be true. However, an interest in problem solving, puzzle solving, and game playing has often been noticed to be the (or a) common thread among successful programmers. The authors' approach is to hone this

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interest or skill. This interesting book connects the problem-solving skill with what we now call "software engineering" by including algorithm design and efficiency, program specification, design and implementation, and programming languages.

Logical Data Base Design, Robert M. Curtice and Paul E. Jones (Arthur D. Little, Inc.), Van Nostrand Reinhold Company, New York, 1982. 227 pp. (ISBN 0-442-24501-7). A logical data base design is a set of rules and techniques for ordering and organizing data within the domain of the requirements of the systems that the data are designed to support. Too often a book or technical paper talks about the philosophy of the logical design of a data base, leaving the reader wishing for practical implementation guidance. The authors of this book introduce, develop, and reintroduce the concepts of logical design while they show, stage-by-stage, a practical approach to the implementation of the design. A person with little or no data base experience should be able to set up a practical data base system after a careful study and application of the concepts and methods presented in this fine book.